

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
	)	
Review of the Section 251 Unbundling	)	WC Docket 04-313
Obligations of Incumbent Local	)	CC Docket 01-338
Exchange Carriers	)	
	)	
	)	

COMMENTS OF IONARY CONSULTING ET ALIA

***Introduction***

The decision of the Court of Appeals for the D. C. Circuit in *USTA II* called into question numerous aspects of the Commission’s *Triennial Review Order*. But many of the Court’s objections were procedural, dealing with *how* determinations of impairment were to be made on a going-forward basis. The TRO itself, by creating an ongoing process of regulatory review, created a high degree of regulatory uncertainty that interfered with the ability of both CLECs and ILECs to make appropriate business plans. The *USTA II* decision can be interpreted in different ways, which can either create regulatory certainty while allowing the growth of facilities-based competition, or which can put a halt to most competition and create even more litigation.

Ionary Consulting suggests that a rational approach is to identify which network elements are likely to be considered “impaired” based upon a general rules for identifying the availability reasonable and affordable substitutes. This must often be done on a geographically-specific basis, because network transmission facilities are fixed assets, the availability of which in other locations within an arbitrary *geographic* area has no bearing on actual impairment. DS-1 and DS-3 interoffice facilities are in particular crucial for the development of facilities-based competition.

Ionary Consulting is a solo practice working with competitive telecommunications providers and their suppliers. Its principal, Fred R. Goldstein, has proffered comments in numerous past proceedings before the Commission. Concurring with Ionary Consulting in this Comment are Cat Communications International/Nationsline and Brahmacom, two CLECs with interests in UNE-Loop operation.

### ***Key issues of the remand***

The *TRO* itself was a complex compromise. The Court of Appeals in *USTA II* objected, in particular, to the way the TRO invoked federal principles. In particular, the Commission was enjoined from leaving the *final* decision on impairment to the states. On the other hand, practical considerations limit the ability of the Commission to make route-by-route or location-by-location determinations of impairment *without* state assistance, simply because of the volume of information and number of determinations that would need to be made. An alternative framework that would likely meet the Court's objections would be to have the states provide *guidance* in making such determinations, performing the initial screening, for instance, of ILEC claims of non-impairment. The Commission itself would then make the final determination.

The original TRO, however, created an extremely complex system that resulted in huge amounts of work, and cost, for both the LECs involved and the states. Simply putting a federal stamp on the same process would be ill-advised. This points out a second objection of the Court, wherein it considered the Commission's route-based impairment determinations to be *too* specific. The Commission must find a balance between specificity and simplicity.

### ***UNE Loop must be facilitated, not blocked***

While the TRO covered many topics, the one that garnered the most attention was its delicate compromise on the matter of UNE Platform, or, stated more precisely, the availability of local switching as an unbundled network element. A clear message was sent to CLECs that UNE Platform, while remaining available for the time being, would not be a safe long-term strategy with which to build a business. A corollary message, also quite clear in the spirit of the TRO, was that UNE Loop operation was to be favored

as an alternative. Indeed, the highly controversial and, indeed, fundamentally erroneous removal of the High Frequency Portion of the Loop element was presumed to be palliated by the purported ability of the DSL CLEC to find a baseband voice partner, or to add its own baseband service, in lieu of riding over the ILEC's telephone service.

Since the time of the TRO, the single largest activity of the Ionary Consulting client base has been the transition from UNE-P to UNE-L. Ionary's consulting practice has always focused on UNE Loop operation, wherein CLECs obtain ILEC unbundled loop facilities via collocation in end office wire centers and attach these to their own switching gear. This provides me with considerable experience in helping CLECs plan, design, and operate UNE Loop networks. Cat Communications International is in the process of transitioning several thousand lines of UNE Platform to UNE Loop operation, and is acquiring new local switching equipment in several regions of the country. Brahmacom is a facilities-based UNE Loop CLEC whose customer base includes residential and business voice and DSL, as well as integrated voice and data DS-1 EEL service aimed at the small-to-medium sized business market. It has never used UNE Platform, but is dependent on transmission UNEs both for backhaul and for access to DS-1 customers.

At its most basic level, a UNE-Loop CLEC requires a number of components to complete its service offering. It requires a *switch* that has interconnection to the rest of the telephone network. It requires *line termination* multiplexing equipment in each of its collocated wire centers. (Such equipment is sometimes called a Digital Loop Carrier, or DLC, though a true DLC is more often installed in the outside plant, not a central office. The systems are functionally similar.) Those are the two primary hardware components that are capable of replacing an ILEC local switching element. But these require extensive connectivity as well. The switch cannot usually be located in the ILEC wire center, under the current Rules, and it generally services multiple ILEC wire centers. It thus needs *backhaul*. The industry-standard protocol for TDM telephony backhaul is Telcordia GR-303. This has a minimum bandwidth of two DS-1 circuits. These two circuits carry a capacity of 44 simultaneous calls, which with a typical line concentration ratio can support approximately 200 phone lines. Larger configurations, of course, are possible, but the cost of the backhaul circuit must be amortized across the number of lines that each supports.

The cost of this DS-1 backhaul bandwidth is thus critical to the ability of a CLEC to provide ordinary voice telephone service using ILEC loops. If this had to be provisioned using Special Access at today's tariff rates, then UNE-Loop operation would be simply uneconomical, especially for larger geographic areas. This is largely a function of the extremely high mileage charges for Special Access circuits. While TELRIC cost-based DS-1 UNE bandwidth is available in most RBOC areas for areas between \$0.30 and \$2.20 per mile, Special Access DS-1 mileage is typically priced at approximately \$20 per mile per month. To give a concrete example, the current UNE rate for DS-1 interoffice transport in Maine is \$80.35 plus \$0.39 per mile. A 100-mile circuit – not a very long distance for Maine – thus carries a monthly charge of \$119.35. This has been shown via TELRIC studies to cover its own costs plus a reasonable share of Verizon's common costs. (While still costlier than UNE-Platform, the combination of UNE IOF backhaul and CLEC-owned switching is at least feasible for serving wire centers that can make reasonably full use of a GR-303 circuit pair.) Under Special Access, each DS-1 circuit would cost \$51.06 plus \$23.27 per mile, or a total of \$2378.06/month, an increase of 1892%! The *minimum* cost for the two DS-1 circuits needed to support GR-303 would be \$4756.12/month. Assuming a 75% fill factor of the 200 lines that it could support, this alone would be \$31.71/line/month, vs. a more manageable \$1.59/line/month under TELRIC. This would make competitive entry essentially impossible, especially in rural markets. Cost-based DS-1 backhaul is thus *necessary* for competition, unless a similarly-priced competitive alternative were available.

The appropriate test for impairment must be one that takes into account the fixed nature of interoffice facilities. "Market" must not be defined in terms more appropriate for broadcast stations, whose coverage blankets a contour. For example, if interoffice UNEs were not available anywhere in an MSA simply because competitive facilities were available in *part* of the MSA, then much of that MSA would lose its ability to have competitive service. For example, there is a high degree of competition between many of the central offices in Manhattan, New York City. While UNE IOF is helpful to CLECs, its absence would not be fatal to competition *on* that island, both because alternatives are usually available, and because the number of overpriced miles of Special Access that would be required would be low. But the New York City MSA extends to Suffolk

County. Parts of that county, the eastern tip of Long Island, are more than 80 miles from New York City, and are likely to have far fewer competitive alternatives. Special Access rates would be just as prohibitive there as in Maine; the absence of cost-based mileage would thus profoundly impair competition.

### ***DSL requires higher bandwidth***

While voice UNE-Loop operation requires a traffic-engineered number of GR-303 (or an alternative protocol, such as VoIP with MGCP, which typically requires *more* bandwidth per call than TDM) circuits, DSL service may require DS3 IOF in order to be feasible. This is due to the nature of DSL's bandwidth requirement. The *average* bandwidth utilization of residential DSL subscribers today is still relatively low; ISPs often get by with about 20 kbit/sec. per subscriber. (This number is however rising; the increased usage of streaming media and particularly online video services will push the average upward sharply.) However, the *minimum* backhaul bandwidth to a DSLAM located in a wire center must be greater than the peak speed offered to subscribers; a rule of thumb used by Ionary is that it must be at least twice the peak speed offered to any subscriber. Thus a single DS-1 is adequate for a 640 kbit/sec. service rendered to, say, 75 subscribers. But with competitive market conditions militating towards 3 Mbit/sec. services and above, and with 20 Mbit/sec. ADSL2+ DSLAMs becoming available, the backhaul bandwidth needs to be much higher. Thus DSL providers are more likely to use DS3 backhaul, if not Ethernet over dark fiber. Competition in broadband service is thus impaired if Special Access pricing is to apply to interoffice transport.

To give a concrete example, a CLEC currently providing DSL service in Presque Isle, Maine via a DS3 IOF would pay a UNE rate of \$615.93 plus \$10.77 per mile, which, for 237 miles, comes to \$3168.42. At Special Access rates of \$763.13 plus \$143.41/mile, that same circuit would cost \$34,751.30/month, an increase of 996%. In contrast, market rates for a DS-3 circuit on the competitive New York to London transatlantic route have been quoted recently at \$2500/month, even lower than the current UNE rate. This demonstrates how the "middle mile" problem is so crucial for the development of competition.

For economic reasons, the ability to offer broadband DSL service is often coupled to the ability to provide voice service. This is because the cost of the local loop, and the cost of collocation, are often too high to be covered by telephone service alone. A CLEC needs a higher Average Revenue Per User than residential telephone service can deliver, so it cannot often profitably service residential areas if limited to voice. A combination of telephone plus DSL service is thus a financial requirement for many CLECs. That in turn is hard to provide on DS-1 alone. Thus the Commission's original finding that DS-3 needs to be available should be preserved.

Substituting multiple DS-1 circuits for DS-3 is a theoretical possibility, but not especially practical. Many DSLAMs are set up with DS-3 interfaces. To downgrade the IOF to, say, four DS-1s, a practical minimum needed to provide a 3 Mbit/sec. peak-rated service, would thus require either a significant reconfiguration of the DSLAM, if possible, or the addition of an external router. Either approach would depend on some form of channel bonding, such as ML-PPP. The use of multiple DS-1s for a higher-speed link poses significant performance issues. Reconfiguration of collocation nodes in order to add an additional router would also constitute an "augment" under most collocation rules, and invoke a severe nonrecurring charge.

### ***Entrance facilities are still required***

The TRO erred in its conclusion that ILECs need not provide Entrance Facilities to CLECs for backhaul purposes; the Court was correct in questioning this item. The TRO's decision cited (at footnote 1122) Worldcom's assertion that because "entrance facility" deployment is so pervasive, incumbent LEC special access pricing closely mirrors UNE rates". Such a statement was self-serving on Worldcom's part. MCI Worldcom's facilities-based CLEC business was concentrated in major cities, where competition was fiercest; in addition, the company had, during the boom years, rolled up a collection of Competitive Access Providers, giving it plenty of its own entrance fiber in its target markets. Denial of ILEC entrance facility UNEs was thus beneficial to Worldcom inasmuch as it crippled its non-CAP facilities-based (UNE-Loop) CLEC competitors. Rural and small-market CLECs rarely have third-party fiber to fall back upon, nor are there carrier hotels in their markets. And CLECs who already have

constructed their own switching centers based on ILEC entrance facilities will be placed at a competitive disadvantage, simply because they chose to invest in facilities that are no longer able to receive entrance facility service except, perhaps, at exorbitant Special Access rates. Such rates are *not* competitive in many of the non-Worldcom markets and are, as noted above, not cost based and much higher than TELRIC.

The ILECs have already abused this rule. One example is a CLEC that requested dark fiber loop access to its own headquarters. That CLEC had its switching gear in a carrier hotel, but the ILEC refused to provide a high-capacity loop to the office because they considered it to be an Entrance Facility. Special Access was not even an option, because dark fiber is not offered under Access tariffs. The Commission could simply rectify this by allowing CLECs to order unbundled high-capacity local loop or dark fiber facilities to any location, including their own switching centers, at appropriate TELRIC loop rates.

### ***Minimum size concerns impact switching impairment***

Facilities-based competition using UNE loops is a viable substitute for UNE Platform in some cases, but not all. In particular, certain scale issues must be addressed. Backhaul is only one cost. In order to convert from UNE-P to UNE-L, a carrier must cover a number of other fixed costs at every wire center in which it is going to provide service. Only then can it add loops and try to cover the fixed costs, and make any possible profit, out of the per-line margin.

The Court in the *USTA II* ruling made the erroneous statement that economy of scale was not part of the TRO record and thus could not be taken into consideration. First off, the record had little on this topic for the simple reason that it was not seriously disputed. Economy of scale in switching is a given, especially at very small line sizes (below, say, 1000-2000 lines). But even then, the TRO text itself cited the issue in several places, including paragraph 75, footnotes 240 and 241, paragraphs 80, 81, 86, 87, footnote 379, paragraph 239, and, notably in context of switching, paragraphs 520 and 524.

One major fixed cost impacting migration out of UNE Platform is collocation. Most RBOC cageless collocation arrangements incur nonrecurring charges on the order of \$10-15,000. (Qwest, however, typically charges more than \$25,000 for cageless collocation,

further limiting access to smaller wire centers.) Then there is the capital cost of the collocated equipment, adding to the cost of getting started in a given wire center. The recurring cost of cageless collocation varies widely and is typically dominated by DC power charges. Some carriers have a minimum power charge over \$600/month, based on a 40 Amp minimum. That practice itself is unconscionable and should be prohibited, as it drastically impairs the ability of CLECs to enter smaller wire centers. Substantial amounts of modern line terminating equipment can be operated today on well under ten Amps.

Given these baseline fixed costs of putting even one line into UNE-L, a carrier has no realistic chance of entry into a central office unless it can meet some minimum expected line size. Typical numbers for this break-even vary depending on relevant UNE loop and transport rates, the business/residential mix, the DSL take rate, and other factors that determine the average revenue per line. But it is almost always more than 100 lines; sometimes breakeven is computed as several hundred. So even if a CLEC prefers to migrate out of UNE-P, it can only do so if it has a rather large concentration of customers in a given wire center.

Competition is thus impaired if UNE switching is not made available for some modest number of lines per wire center. Based on the GR-303 backhaul minimum of two DS-1s, an allowance on the order of 150 to 200 lines *per* wire center should be taken into account before capping the number of UNE-P lines that a CLEC can have. This also gives CLECs time to seek new customers, via UNE-P, and then convert to UNE-L when the critical volume is reached.

At least for the next few years, shared line terminations are not likely to be practical for most CLECs. While it makes sense in concept for one CLEC to rent ports on its collocated DLC multiplexing equipment to other CLECs who don't have critical mass, shared DLCs are problematic. Many DLCs support only a single GR-303 uplink. They were designed for ILECs to support one switch at a time, not to be shared; the GR-303 protocol itself does not accommodate multiple switches at a time. Some larger ones may allow two or even four switches to share it, but these are relatively costly to begin with. Over time, if the Commission allows UNE-P to remain available for small numbers of



CLEC lines per wire center but gives notice of an eventual phase-down of even this option, then equipment vendors *might* create better options. It is possible, for example, that some newer VoIP implementations may be able to adapt to working with multiple switches. But few DLCs today can even talk VoIP.

### ***Unreasonable restrictions should be automatically removed***

In the original TRO, the Commission voided ILEC restrictions on commingling: “...we find that a restriction on commingling would constitute an ‘unjust and unreasonable practice’ under 201 of the Act, as well as an ‘undue and unreasonable prejudice or advantage’ under section 202 of the Act.” This change, to which the Court did not object, should facilitate CLEC usage of Special Access facilities in combination with remaining UNEs. However, ILECs have refused to accept the FCC’s pronouncement without amending the Interconnection Agreement and, in some cases, subsequent negotiation. For example, Verizon has recently demanded that CLECs sign an amendment that explicitly waives the benefits of the Commission’s commingling rule unless and until a subsequent separate agreement is reached.

The Commission should clarify that restrictions on commingling, having been found “unjust and unreasonable”, are automatically void. No change in contract should be required; these changes should be explicitly stated to be self-executing.

### ***Conclusion***

A number of changes to the TRO have been mandated by the Court. These are not in and of themselves with the TRO’s original goal of phasing down UNE Platform by encouraging facilities-based competition via UNE Loop. The Commission should, in addressing the remand, ensure that UNE Loop operation is not crippled.

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